



SERVICE INFORMATION LETTER

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OXYGEN - ATA CHAPTER 35

VENDOR CODE: 53655

CHANGE TO THE LATENT LEAKAGE TEST OF THE P/N 6350 SERIES CYLINDER & VALVE ASSEMBLY

1. BACKGROUND

- A. Engineering data supports the reduction of the latent leak test storage requirement from 72 to 48 hours. The external leak test will be revised to allow two different methods. These changes will be incorporated into the CMM at the next revision. After these changes have been added to the CMM, this SIL will no longer be current.
- B. You are authorized to copy this SIL. If you copy this SIL, you must copy all of the SIL.

2. EFFECTIVITY

This SIL affects all end items in the 6350 Series whether removed from an aircraft or from spares inventory.

3. MATERIALS

All tools and materials are identified in CMM 35-21-20.

4. ACCOMPLISHMENT OF SIL

A. Functional Testing

This SIL changes the test procedures in section 8. Testing of CMM 35-21-20.

- B. Perform the Latent Leak Test and External Leak Test at the time of the next service or overhaul.

WARNING: FAILURE TO USE ONLY PURE, TEST GAS (NOT OIL PUMPED) MAY CAUSE AN EXPLOSION OR FIRE RESULTING IN SERIOUS PERSONAL INJURY OR DEATH.

- C. Oxygen contaminated with oil can ignite with explosive force. Do not, under any circumstances use oil pumped test gas. Even a minute quantity of oil will cause contamination of the CVA and test equipment.

WARNING: FAILURE TO FULLY DISCHARGE THE OXYGEN FROM THE CVA, COMPONENT PARTS, OR TEST SETUP PRIOR TO DISASSEMBLY OF ANY PART MAY CAUSE SERIOUS PERSONAL INJURY OR DEATH.

- D. High pressure oxygen is a hazardous material. When pressurized oxygen is discharged intentionally or due to equipment failure, the released energy can be highly destructive if not properly controlled. Fully discharge the oxygen from the CVA, component parts, and test setup prior to disassembly of any part.

WARNING: FAILURE TO REFER TO AND FOLLOW APPLICABLE MANUFACTURER'S OR SUPPLIER'S MATERIAL SAFETY DATA SHEET (MSDS) BEFORE USING CONSUMABLE TEST MATERIALS SPECIFIED IN THIS MANUAL, MAY RESULT IN SERIOUS PERSONAL INJURY, ILLNESS, OR DEATH.



- E. Some consumable test materials used in this manual may be toxic under certain conditions. Material Safety Data Sheets provide information on chemical makeup, properties, and precautions for handling potentially hazardous substances which may affect health risks, storage, disposal, and other workplace safety factors.

Table 1
Reference Documents

DOCUMENT NUMBER	DOCUMENT NAME	ORDERING INFORMATION
P2.5	Transfilling of High Pressure Gaseous Oxygen To Be Used For Respiration	Compressed Gas Association Inc. Arlington, VA 22202-4102 USA (V01701)
AIR1059	Transfilling and Maintenance of Oxygen Cylinders	SAE International Warrendale, PA 15096-0001 USA
MIL-PRF-25567	Military Specification Leak Detection Compound, Oxygen Systems	US Government Printing Office Washington, DC 20402 USA
MIL-PRF-27210	Military Specification Oxygen, Aviator's Breathing, Liquid and Gas	US Government Printing Office Washington, DC 20402 USA

Table 2
Consumable Materials

MATERIAL	DESCRIPTION	MANUFACTURER (VENDOR CODE)
Leak Test Solution	Sherlock Leak Detector MIL-PRF-25567, Type 1	Winton Products Co. Inc. Charlotte, NC 28236 USA (V23316)
Oxygen 1850 psig (12.76 MPa) minimum pressure	MIL-PRF-27210, Type I	Local Vendor

Table 3
Special Tools

NOMENCLATURE	PART NUMBER	MANUFACTURER (VENDOR CODE)
Calibrated Gauge 0-3000 psig (0-20.68 MPa) Accuracy $\pm 1.0\%$ of span	1408 Series	Ametek (US Gauge) Feasterville, PA 19053 USA (V61349)
Cap (0.903-14 NGO-RH)	n/a	Local Vendor



Table 4
Cylinder Charging Pressure and Temperature Data

TEMPERATURE °F (°C)	NOMINAL 1800 psig (12.41 MPa) CHARGING PRESSURE psig (MPa)	NOMINAL 1850 psig (12.76 MPa) CHARGING PRESSURE psig (MPa)
100 (37.8)	1935 (13.34)	1985 (13.69)
95 (35.0)	1910 (13.17)	1960 (13.51)
90 (32.2)	1890 (13.03)	1935 (13.34)
85 (29.4)	1870 (12.89)	1910 (13.17)
80 (26.7)	1850 (12.76)	1885 (13.00)
75 (23.9)	1825 (12.58)	1865 (12.86)
70 (21.1)	1800 (12.41)	1850 (12.76)
65 (18.3)	1775 (12.248)	1825 (12.58)
60 (15.6)	1750 (12.07)	1800 (12.41)
55 (12.8)	1730 (11.93)	1775 (12.24)
50 (10.0)	1710 (11.79)	1750 (12.07)

F. Cylinder and Valve Assembly Test Procedures

Add this Latent Leakage Test after paragraph 8.E.(7) in the 8. Testing section of the CMM. Refer to SIL-35-58 for the Test Data Sheet.

- (1) Latent Leakage Test for the Oxygen Cylinder Valve Assembly–Slow Opening (-4, -5, -6, 7, 8, IPL Fig. 1). Refer to IPL Fig. 1, unless noted otherwise.
 - (a) Charge the CVA to 1800 – 1850 psig (12.4 – 12.8 MPa) per the procedure defined in the document in Table 1.
 - (b) Connect the calibrated gauge (Table 3) to the valve outlet. Using the calibrated gauge, determine the cylinder pressure in accordance with Table 4.
 - (c) Disconnect the calibrated gauge from the valve outlet. With the outlet cap assembly (Table 3) installed, and the valve in the open position, store the cylinder and valve assembly for 48 hours minimum.
 - (d) Remove the cap from the outlet, and connect the calibrated gauge (Table 3) to the valve outlet. Using the calibrated gauge, verify that the cylinder pressure is still in accordance with Table 4.
 - (e) Refer to the table in section 9. Trouble Shooting in the CMM for troubleshooting.
- (2) External Leakage Test for the Oxygen Cylinder Valve Assembly–Slow Opening (-4, -5, -6, 7, 8, IPL Fig. 1)

Do either (a) or (b) below in place of the External Leakage Test in paragraph 8.E.(3) of the 8. Testing section of the CMM.

 - (a) Non-immersion method
 - 1 Install the cap (Table 3) on the oxygen cylinder valve assembly–slow opening (-1, -2, IPL Fig. 3) outlet. Tighten the cap wrench tight.
 - 2 Slowly rotate the valve handle (83, IPL Fig. 3) counterclockwise (approximately 3 complete turns) until the valve is in the half-open position.



- 3 Brush the Leak Test Solution (Table 2) on all areas of the valve where external leakage can occur and on the mating threads between the valve and the cylinder (9, IPL Fig. 1). Bubbles will show where the leaks are.
- 4 Rotate the handle clockwise until the valve is in the closed position. Slowly open and close the valve two more times. Rotate the handle counterclockwise until the valve is in the full-open position.
- 5 Repeat Paragraph 4.F.(2)(a)4 with the valve in the full-open position.
- 6 Bubbles in the in the Leak Test Solution indicate leakage. No bubbles are allowed.
- 7 Rotate the handle clockwise until the valve is in the closed position.
- 8 Dry the CVA using clean, dry air that is oil-free.
- 9 Discharge the oxygen from the valve by slowly removing the cap assembly from the valve outlet.

(b) Immersion method

- 1 Install the cap (Table 3) on the on-off oxygen valve assembly (-1, thru -6, IPL Fig. 2) outlet.
- 2 With the valve approximately half open, immerse the valve and cylinder neck in a container of Rust Inhibiting Leak Test Solution (Table 2).
- 3 There shall be no evidence of leakage when observed for 2 minutes except as stated in paragraph 4.F.(2)(b)5.
- 4 Cycle the valve (from open to closed to fully open) 2 times and repeat steps 4.F.(2)(b)2 and 4.F.(2)(b)3.
- 5 External leakage, if present, must not exceed 5 cc/hr (0.083 cc/min) (approximately 3 bubbles in 2 minutes).
- 6 Dry the CVA using clean, dry air that is oil-free. Then close the valve.

(3) Latent Leakage Test for the On-Off Oxygen Valve Assembly (-3A, -3B, IPL Fig. 1). Refer to IPL Fig. 1, unless noted otherwise.

- (a) Charge the CVA to 1800 – 1850 psig (12.4 – 12.8 MPa) per the procedure defined in the document in Table 1.
- (b) Connect the calibrated gauge (Table 3) to the valve outlet. Using the calibrated gauge, determine the cylinder pressure in accordance with Table 4.
- (c) Disconnect the calibrated gauge from the valve outlet. With the cap (Table 3) installed, and the valve in the open position, store the cylinder and valve assembly for 48 hours minimum.
- (d) Remove the cap from the outlet, and connect the calibrated gauge (Table 3) to the valve outlet. Using the calibrated gauge, verify that the cylinder pressure is still in accordance with Table 4.
- (e) Refer to the table in section 9. Trouble Shooting in the CMM for troubleshooting.

(4) External Leakage Test for the On-Off Oxygen Valve Assembly (-3A, -3B, IPL Fig. 1)

Do either (a) or (b) below in place of the External Leakage Test in paragraph 8.E.(3) of the 8. Testing section of the CMM.

(a) Non-immersion method

- 1 Install the cap (Table 3) on the on-off oxygen valve assembly (-3A, -3B, IPL Fig. 1) outlet. Tighten the cap wrench tight.
- 2 Slowly rotate the handle (24, IPL Fig. 2) counterclockwise (approximately 3 complete turns) until the valve is in the half-open position.



- 3 Brush the Leak Test Solution (Table 2) on all areas of the valve where external leakage can occur and on the mating threads between the valve and the cylinder (9, IPL Fig. 1). Bubbles will show where the leaks are.
- 4 Rotate the handle clockwise until the valve is in the closed position. Slowly open and close the valve two more times. Rotate the handle counterclockwise until the valve is in the full-open position.
- 5 Repeat paragraph 4.F.(4)(a)4 with the valve in the full-open position.
- 6 Bubbles in the in the Leak Test Solution indicate leakage. No bubbles are allowed.
- 7 Rotate the handle clockwise until the valve is in the closed position.
- 8 Dry the CVA using clean, dry air that is oil-free.
- 9 Discharge the oxygen from the valve by slowly removing the cap from the valve outlet.

(b) Immersion method

- 1 Install the cap (Table 3) on the on-off oxygen valve assembly (-3A, -3B, IPL Fig. 1) outlet. Tighten the cap wrench tight.
- 2 With the valve approximately half open, immerse the valve and cylinder neck in a container of Rust Inhibiting Leak Test Solution (Table 2).
- 3 There shall be no evidence of leakage when observed for 2 minutes except as stated in paragraph 4.F.(4)(b)5.
- 4 Cycle the valve (from open to closed to fully open) 2 times and repeat steps 4.F.(4)(b)2 and 4.F.(4)(b)3.
- 5 External leakage, if present, must not exceed 5 cc/hr (0.083 cc/min) (approximately 3 bubbles in 2 minutes).
- 6 Dry the CVA using clean, dry air that is oil-free. Then close the valve.



5. Reference Documents

- A. CMM 35-21-20 P/N 6350 Series Cylinder & Valve Assembly
- B. SIL-35-58 Test Data Sheet for CMM 35-21-20

6. TO CONTACT AVOX SYSTEMS:

- A. Use the contact information below to get a copy of a CMM or the revision status of a publication.
Give the AVOX Systems part number and the aircraft model when you request a CMM copy.

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- C. To buy replacement parts for an AVOX Systems component, contact any IN-Services location listed in Section B above.